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INFO 329-03 Introduction to Data Mining

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**INTRODUCTION TO DATA MINING
INFO 329/MKTG 329
Fall 2017**

Instructor: Dr. Lauren F. Laker
B.A. Mathematics & Statistics, Miami University
B.S. Secondary Math Education, Miami University
Masters of Business Administration, Xavier University
PhD Operations, Business Analytics, Information Systems, University of Cincinnati

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Textbooks: Fundamentals of Predictive Analytics with JMP (ISBN: 978-1-62959-856-7)
Authors: Ron Klimberg and B.D. McCullough
MUST have SECOND edition

Data Mining for Business Analytics: Concepts, Techniques and Applications with JMP PRO
(ISBN: 978-1-11887-743-2)
Authors: Galit Shmueli, Peter Bruce, Mia Stephens, Nitin Patel

Optional for those in need of additional Stats help
Practical Data Analysis with JMP (ISBN: 978-1-61290-823-6)
Author: Robert Carver

Course Description:

Students will receive an introduction to the basic theory, tools and techniques of data mining, including prediction, associations, clustering, and recommendation systems. The course will be delivered from two points of view: the technological view and the marketing management view. Students will use data mining tools when doing their team projects.

Course Objectives:

In the last decade we have seen an explosion in the quantity of data available to businesses. Transactional data from point-of-sale scanners are now routinely available; data from direct marketing is growing exponentially; and e-commerce and web-browsing data is everywhere. Obviously, there is going to be a strong interest in extracting value or knowledge from this data. My vision of this course is to present and discuss data mining technologies and their application to data sets in an effort to support tactical and strategic business decisions. However, the over-riding focus will be learning when and how to use the technologies.

- Understand popular data mining techniques, how to apply them, and when they are applicable
- Utilize a state-of-the-art commercial data mining package
- Apply popular data mining techniques to analyze and solve real-world problems
- Recognize and assess ethical data mining practices

XAVIER UNIVERSITY VISION STATEMENT

"Xavier men and women become people of learning and reflection, integrity, and achievement, in solidarity for and with others."

WILLIAMS COLLEGE OF BUSINESS MISSION

"We educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition."

Student Assessment and Evaluation

1) Class attendance, participation and discussion	5%
2) Exam 1	25%
3) Exam 2	25%
4) Course Project	10%
5) Class Readings/HW	30%
6) Final Exam	5%

Grade Distribution

93-100	A
90-92.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
60-69.9	D
Below 60	F

COURSE POLICIES

1. **Attendance** and participation are critical in this course and will be recorded daily. This course is very interactive (hands-on)...*Knowledge is CONSTRUCTED not received. I will take attendance every class period. This will be used as a measure for the In-Class portion of your grade. Attendance is not mandatory, but I WILL NOT COVER MISSED MATERIAL DURING OFFICE HOURS FOR THOSE WHO DO NOT ATTEND CLASS.* If you must miss for a legitimate reason, please let me know and we can arrange a time to discuss what is/was missed.
2. **No late work accepted.** Assignments are to be submitted on the due date at the beginning of class. Late assignments will not be accepted unless **PRIOR** arrangements have been made with the instructor. A score of zero will be assigned for any assignment received beyond the due date.
3. **No make-up exams/tests.** They will be taken only those days in class. A score of zero will be assigned for any missed tests.
4. INFO/MKTG 329 has a **zero tolerance for academic dishonesty**.
5. **Technology:** The use of the computers during class should be used **ONLY** for the material. They are not to be used for any other purpose (email, instagram, etc.) during class time.

ACADEMIC HONESTY

"All work submitted for academic evaluation must be the student's own. Certainly, the activities of other scholars will influence all students. However, the direct and unattributed use of another's efforts is prohibited as is the use of any work untruthfully submitted as one's own." The penalty for violation of this policy will be a zero for that assignment if it is a first offense. Subsequent violation will result in an **F for the course**.

You are encouraged to work and study with other students in class and to learn from one another as opportunities provide. However, turning in the work of another or providing your work to someone else will be considered academically dishonest. It is my tendency to handle such cases with the severest penalties possible.

Tentative Schedule

Week of:	Topic	Textbook
8/22	Course Introduction	Klimberg: Chapter 1 Shmueli: Chapters 1, 2
8/29	Introduction to JMP & Data Visualization	Klimberg: Chapter 4 Shmueli: Chapters 2, 3
9/5	Finish Introduction to JMP & Data Visualization Start Statistics Review	Klimberg: Chapters 2, 3 Shmueli: Chapter 5 Carver: Chapters 1, 3, 5, 9
9/12	Finish Statistics Review	
9/19	Regression, ANOVA, Transformations	Klimberg: Chapter 5 Shmueli: Chapter 6 Carver: Chapters 14, 15
9/26	Regression, ANOVA, Transformations	
10/3	Regression, ANOVA, Transformations	
10/10	EXAM #1 (2 part, both days)	Stats, Regression, ANOVA
10/17	Logistic Regression	Klimberg: Chapter 6 Shmueli: Chapter 10
10/24	Decision Trees	Klimberg: Chapter 10 Shmueli: Chapter 19
10/31	Neural Networks	Klimberg: Chapter 12 Shmueli: Chapter 11
11/7	Model Comparison & Assessment	Klimberg: Chapter 14
11/14	Exam #2 (2 part, both days)	Logistic Regression, Decision Trees, Neural Networks
11/21	Class on Tuesday but not Thursday THANKSGIVING - NO CLASS	Project Introduction
11/28	Cluster Analysis	Klimberg: Chapter 9 Shmueli: Chapter 14
12/5	Final Exam & Project Work	
12/14	Group Project Presentations	